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HOW INSECTICIDES ARE DEVELOPED -- II

A transcribed talk by W. H. White, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture. Recorded September 27, 1945. Time, without announcer's parts, four minutes and 58 seconds.

ANNOUNCER'S OPENING AND CLOSING

OPENING

ANNOUNCER: (LIVE)

And now by transcription...from the United States Department of Agriculture...we learn how science helps the farmer control the Mexican bean beetle... Number 1 pest of snapbeans, lima beans, and all other beans that grow in the home garden.

They'll grow, that is, if you spray or dust the vines with a certain insecticide...developed by scientists in the Department of Agriculture. But listen to the story...as told by W. H. White, of the Federal Bureau of Entomology and Plant Quarantine. Mr. White.

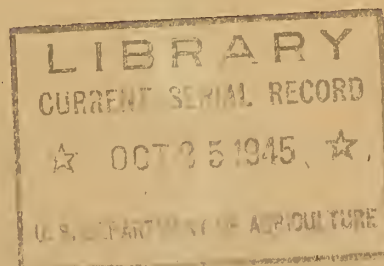
CLOSING

ANNOUNCER: (LIVE)

Many thanks, Mr. White, for telling us how the entomologists got the bean beetle under control. I had no idea -- how many years of hard work it takes -- to get something that keeps the bugs off our food crops!

You've been listening to Mr. W. H. White, of the Bureau of Entomology and Plant Quarantine, of the United States Department of Agriculture.

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W. H. WHITE: (TRANSCRIPTION)

The year 1920 was a very unlucky year for the bean-growers of the Southeast. In that year a small copper-colored beetle, with 16 black spots, was found in a patch of garden beans near Birmingham, Alabama.

The pest was quickly recognized as the insect then known as the "lady bean-beetle" -- an immigrant from the West whose presence was "viewed with alarm."

And we had good reason to be alarmed! For 75 years, the lady bean-beetle had been a destroyer of garden beans in the irrigated regions of the Southwest.

As I have said, it appeared in Alabama in 1920. And from then on it spread rapidly -- to nearly all the States east of the Mississippi River.

The bean -- favorite planting of every garden -- was ruined, almost overnight it seemed, by a fuzzy little creature with soft yellow-colored spines. This was the larva of the bean beetle. As every home gardener now knows, it works on the under side of the leaves, destroying everything but the veins. The adult feeds too, but sparingly. Eventually the whole plant may lose its foliage.

The bean-growers were frantic. In their efforts to get rid of this pest, they resorted to many peculiar methods. Some of the local sages recommended Epsom salt. Others rigged up poles, and placed tin cans on the top.

I do not know the origin of this strange custom, but for a number of years these poles -- topped by tin cans -- were a familiar sight in the bean fields of Virginia and Maryland.

However, in spite of the poles and tin cans, the beetles went on feasting. Lima beans -- snapbeans -- all kinds of beans were their dish, and they licked the platter clean.

By 1921, the bean-growers realized they couldn't afford to grow this crop any longer, unless they had some method of control for the bean beetle.

They asked the Federal Government for help, and we set up laboratories in four different States -- Alabama, New York, Ohio, and Virginia. We also sent a number of scientists to Mexico, to see whether they could find any parasites of the beetle.

In fact, we tried everything we could think of. In May of 1921 the badly infested area near Birmingham was put under rigid quarantine. Two months later, the quarantine was lifted. The beetle is a strong and ready flyer, and we soon learned that when it gets an urge to move on, to bean fields far away, no Federal quarantine will stop its flight.

From the very beginning, we knew that insecticides would play an important part in control of the beetle, because it is a heavy feeder. The problem was to find a material that would kill the insect when used in very small amounts, and not injure the beans. Also it must be reasonable in price and easy to apply.

Many insecticides were tested in the field plots of beans near Birmingham, and it looked for a time as if the well-known stomach poison, lead arsenate, would be an effective control. However -- and to our surprise -- lead arsenate did not prove satisfactory, for it stunted the growth and reduced the yield of the bean crop.

Another poison, calcium arsenate, was widely used in the South for the boll weevil, and after a good deal of testing it was adopted for the bean beetle. But as the beetle spread, and wider use was made of different brands of calcium arsenate, we found it was not safe to use in all climates.

Another possibility was magnesium arsenate. This was safe enough to use on the beans, but it was hard to get, and, like calcium arsenate, it left a residue that had to be washed off.

Among still other materials we considered were Paris green and cryolite. Paris green killed the beetle, but it also injured the beans. Cryolite was effective in spray form, but not so effective in dust form.

Finally in 1931 -- eleven years after the bean beetle first appeared in Alabama -- we discovered what we had been searching for. We found that the ground root of a plant known as Derris elliptica, which grows in the Far East, kills the bean beetle, will not injure the plants, and will not leave a harmful residue.

The most active ingredient in the Derris root is rotenone. It is also contained, as we learned later, in the root of the cube of South America.

Now some people may be wondering why I don't mention another insecticide, known as DDT. The answer is -- DDT will not control the bean beetle, in dosages that are practical to use.

As of the present date there is no better insecticide, for use against the bean beetle, than a spray or dust of rotenone, applied to the under side of the bean plant. And I am glad to report -- it can be used by the home and commercial gardener, alike.